Edgewood Area - Aberdeen Proving Ground, Maryland 21010-5424
U.S. Army Soldier and Biological Chemical Command

Individual Protective Equipment Facility

FEATURES:

- Environmental Chamber, hot, cold climatic conditions
- Exercise Performance Lab
- Visual Field Perimeter
- Sound Chamber
- CAD and Stereolithography Equipment
- Particulate Filter Testing

The Individual Protective Equipment Facility performs physiology tests to evaluate the effect of masks on the ability of individuals to perform a wide range of activities, from sleeping to running, in differing environments. The team provides respiratory protection through the design, test, and evaluation of advanced respiratory protective concepts and technologies. Physiologists, engineers, and technicians perform physiological, visual, communications, and exercise performance tests in order to provide the military with the best possible equipment. Studies and tests result in enhanced protection, reduced physiological burden, and improved compatibility of current and future respirator systems with other military equipment. This facility provides respiratory protection by designing masks and other protective equipment, testing prototypes, and recommending changes.

State-of-the-art Computer Aided Design (CAD) and plastic and rubber prototyping equipment are two features of the facility. Prototypes are evaluated through qualification testing for structural and functional completeness. Capabilities in the design area include the design and prototyping of respirators using CAD equipment; stereolithography to generate plastic models; fabrication of experimental plastic and rubber prototypes; and qualification testing that includes headform leakage testing, valve/filter performance, resistance/airflow testing, and field of view/optical testing.

Human performance testing is also conducted to ensure comfort, fit, breathing resistance, vision, and communication aptitude. Capabilities in the human performance testing area include vision evaluations to determine monocular and binocular fields of view, visual acuity, stereo acuity and light signal detection; measurement of various parameters during rest and exercise to quantify performance degradations; administration of psychological questionnaires and execution of computer generated cognitive performance tasks to quantify psychological stress factors; communications testing using the Rapid Speech Transmission Index technique; and respirator and human performance testing within hot and cold environmental extremes.

A full range of physiology test capabilities is available at the Individual Protective Equipment Facility. Technicians can provide testing of industrial respiratory equipment. Protocols for human performance testing can be tailored to suit a variety of applications. The team can design respirators for special applications to meet specific user needs. The team also provides technical advice and consultant services to military organizations and other federal agencies by assessing their capability to protect buildings, and advising on how to enhance their protection efforts. Testing services are available as needed.

For additional information, E-mail research.technology@sbccom.apgea.army.mil.

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